CLAIMS

1. A circuit comprising:

a differential amplifier for receiving a differential input signal and generating a differential output signal;

a comparator for generating an adjustment signal based at least in part upon the differential output signal; and

a current controller for controlling current steering and at least one offset current in the differential amplifier based at least in part upon the adjustment signal and a current steering control signal.

2. The circuit of claim 1, wherein the differential amplifier comprises a first differential transistor pair and a second differential transistor pair, and the current controller steers current to at least one of the first and second differential transistor pairs.

3. The circuit of claim 2, wherein the current controller steers current to both the first and second differential transistor pairs.

4. The circuit of claim 2, wherein the current controller controls an amount of offset current in at least one of the

first differential transistor pair and the second differential transistor pair.

5. The circuit of claim 1, wherein the differential output signal comprises complementary positive and negative output signal components, and the comparator compares the difference between the positive and negative output signal components.

6. The circuit of claim 1, wherein the differential input signal is a differential multi-PAM input signal.

7. The circuit of claim 1, further comprising:

a differential input multiplexer for selecting between a differential input voltage signal and at least one differential reference signal for the differential input signal.

8. The circuit of claim 7, wherein the at least one differential reference signal comprises at least one of a differential zero voltage reference signal and a differential twist voltage reference signal.

9. The circuit of claim 8, wherein the current controller also receives a select signal for enabling the current controller

when the differential input multiplexer selects the differential twist voltage reference signal for the differential input signal.

10. The circuit of claim 8, wherein the current controller also receives a select signal for enabling the current controller when the differential input multiplexer selects the differential zero voltage reference signal for the differential input signal.

11. The circuit of claim 7, wherein control of the at least one offset current is disabled when the differential input multiplexer selects the differential input voltage signal for the differential input signal.

12. The circuit of claim 7, wherein control of a tail current component of the differential amplifier is disabled when the differential input multiplexer selects the differential input voltage signal for the differential input signal.

13. The circuit of claim 7, wherein the differential input voltage signal is a differential multi-PAM input voltage signal.

14. A method for reducing the effect of random mismatches in

circuit components in a differential amplifier, the method comprising the steps of:

applying a differential zero voltage reference signal to an input of the differential amplifier;

adjusting at least one offset current component of the differential amplifier until a differential output voltage from an output of the differential amplifier is equal to zero;

applying a differential twist voltage reference signal to the input of the differential amplifier; and

adjusting tail current components of the differential amplifier until a differential output voltage from an output of the differential amplifier is equal to zero.

15. The method of claim 14, further comprising the step of:

setting the value of a current steering variable signal to zero before adjusting the at least one offset current component of the differential amplifier.

16. The method of claim 14, further comprising the step of:

setting the value of a current steering variable signal to a predetermined value before adjusting tail current components of the differential amplifier.

17. The method of claim 14, further comprising the step of:

repeating at least some of the steps recited in claim 13 until the adjustments to the at least one offset current component and the tail current components are not significant.

18. The method of claim 17, further comprising the steps of:

applying a differential input voltage signal to the input of the differential amplifier; and

adjusting current steering in the differential amplifier until a desired twist voltage is achieved.

19. The method of claim 18, wherein the differential input voltage signal is a differential multi-PAM input voltage signal.

20. At least one signal embodied in at least one carrier wave for transmitting a computer program of instructions configured to be readable by at least one processor for instructing the at least one processor to execute a computer process for performing the method as recited in claim 14.

21. At least one processor readable carrier for storing a computer program of instructions configured to be readable by at least one processor for instructing the at least one processor

to execute a computer process for performing the method as recited in claim 14.

22. A differential amplifier comprising:

means for applying a differential zero voltage reference signal to an input of the differential amplifier;

means for adjusting at least one offset current component of the differential amplifier until a differential output voltage from an output of the differential amplifier is equal to zero;

means for applying a differential twist voltage reference signal to the input of the differential amplifier; and

means for adjusting tail current components of the differential amplifier until a differential output voltage from an output of the differential amplifier is equal to zero.